IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: DR. REIMAR LENZ

Serial No.: NOT YET ASSIGNED

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Title: DIGITAL CAMERA HAVING CMOS IMAGE SENSOR WITH IMPROVED DYNAMICS AND METHOD FOR CONTROLLING A CMOS IMAGE SENSOR

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Please amend claims 2-4, 6, and 7 as follows prior to examination. A marked-up version of the amended claims showing the changes made is included at the end of this preliminary amendment.

2. (Amended) A digital camera according to claim 1, wherein the delay time (D) corresponds to about 1 percent to 20 percent, preferably 2 percent to 10 percent, of the exposure time (B).

3. (Amended) A digital camera according to claim 1, wherein the first sampled value for the particular pixels is stored digitally in an image memory (10), and the stored, digital sampled value is subtracted digitally from the second, digital sampled value.

4. (Amended) A digital camera according to claim 1, wherein a comparator device compares the second sampled value or the first sampled value with a threshold value (Th), and if the threshold value is exceeded the first sampled value, preferably multiplied by a scaling factor, is outputted as the wanted signal.

6. (Amended) A digital camera according to claim 3, wherein a dark value offset memory (11) is provided, and an offset value belonging to a particular pixel and prestored in the dark value offset memory (11) is subtracted from the first sampled value of said pixel.

7. (Amended) A method for controlling a CMOS image sensor (2) by the so-called CDS method wherein pixels of the image sensor sampled toward the onset and end of an exposure time (B) and a wanted signal is formed by subtracting the first sampled value from the second sampled value, wherein the first sampled value is obtained with usable image information after a predetermined delay time after RESET.

Please add the following new claims.

--8. (New) A digital camera according to claim 2, wherein the first sampled value for the particular pixels is stored digitally in an image memory (10), and the stored, digital

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sampled value is subtracted digitally from the second, digital sampled value.

9.   (New)   A digital camera according to claim 2, wherein a comparator device compares the second sampled value or the first sampled value with a threshold value (Th), and if the threshold value is exceeded the first sampled value, preferably multiplied by a scaling factor, is outputted as the wanted signal.

10.   (New)   A digital camera according to claim 3, wherein a comparator device compares the second sampled value or the first sampled value with a threshold value (Th), and if the threshold value is exceeded the first sampled value, preferably multiplied by a scaling factor, is outputted as the wanted signal.

11.   (New)   A digital camera according to claim 8, wherein a comparator device compares the second sampled value or the first sampled value with a threshold value (Th), and if the threshold value is exceeded the first sampled value, preferably multiplied by a scaling factor, is outputted as the wanted signal.

12.   (New)   A digital camera according to claim 9, wherein the following is outputted as the wanted signal in

accordance with the brightness derived from the first and/or second sampled value:

    a) in a low brightness range: the difference of the sampled values;

    b) in a high brightness range: the value derived solely from the first sampled value; and

    c) in a medium brightness range: a weighted mixed value obtained from the values according to a) and b).

13. (New) A digital camera according to claim 10, wherein the following is outputted as the wanted signal in accordance with the brightness derived from the first and/or second sampled value:

    d) in a low brightness range: the difference of the sampled values;

    e) in a high brightness range: the value derived solely from the first sampled value; and

    f) in a medium brightness range: a weighted mixed value obtained from the values according to a) and b).

14. (New) A digital camera according to claim 11, wherein the following is outputted as the wanted signal in accordance with the brightness derived from the first and/or second sampled value:

    g) in a low brightness range: the difference of the sampled values;

h) in a high brightness range: the value derived solely from the first sampled value; and

i) in a medium brightness range: a weighted mixed value obtained from the values according to a) and b).

15. (New) A digital camera according to claim 4, wherein a dark value offset memory (11) is provided, and an offset value belonging to a particular pixel and prestored in the dark value offset memory (11) is subtracted from the first sampled value of said pixel.

16. (New) A digital camera according to claim 5, wherein a dark value offset memory (11) is provided, and an offset value belonging to a particular pixel and prestored in the dark value offset memory (11) is subtracted from the first sampled value of said pixel.

17. (New) A digital camera according to claim 9, wherein a dark value offset memory (11) is provided, and an offset value belonging to a particular pixel and prestored in the dark value offset memory (11) is subtracted from the first sampled value of said pixel.

18. (New) A digital camera according to claim 10, wherein a dark value offset memory (11) is provided, and an offset value belonging to a particular pixel and prestored in the

dark value offset memory (11) is subtracted from the first sampled value of said pixel.

19.   (New)   A digital camera according to claim 11, wherein a dark value offset memory (11) is provided, and an offset value belonging to a particular pixel and prestored in the dark value offset memory (11) is subtracted from the first sampled value of said pixel.
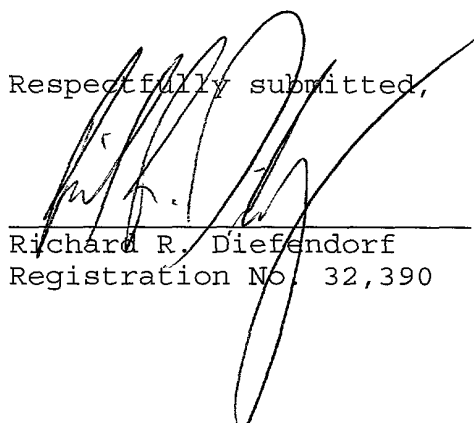
20.   (New)   A digital camera according to claim 12, wherein a dark value offset memory (11) is provided, and an offset value belonging to a particular pixel and prestored in the dark value offset memory (11) is subtracted from the first sampled value of said pixel.--

REMARKS

This preliminary amendment is being filed in order to place the claims in a form which is more appropriate for U.S. examination and to eliminate multiple dependent claims and reduce the filing fee.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In each claim appearing below, deletions are bracketed and additions are underlined.

2. (Amended) A digital camera according to claim 1, [characterized in that] wherein the delay time (D) corresponds to about 1 percent to 20 percent, preferably 2 percent to 10 percent, of the exposure time (B).

3. (Amended) A digital camera according to [either of claims 1 and 2, characterized in that] claim 1, wherein the first sampled value for the particular pixels is stored digitally in an image memory (10), and the stored, digital sampled value is subtracted digitally from the second, digital sampled value.

4. (Amended) A digital camera according to [any of claims 1 to 3, characterized in that] claim 1, wherein a comparator device compares the second sampled value or the first sampled value with a threshold value (Th), and if the threshold value is exceeded the first sampled value, preferably multiplied by a scaling factor, is outputted as the wanted signal.

6. (Amended) A digital camera according to [any of claims 3 to 5, characterized in that] claim 3, wherein a dark value offset memory (11) is provided, and an offset value belonging to a particular pixel and prestored in the dark value

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offset memory (11) is subtracted from the first sampled value of said pixel.

7.   (Amended)   A method for controlling a CMOS image sensor (2) by the so-called CDS method wherein pixels of the image sensor sampled toward the onset and end of an exposure time (B) and a wanted signal is formed by subtracting the first sampled value from the second sampled value, [characterized in that] wherein the first sampled value is obtained with usable image information after a predetermined delay time after RESET.